

CLAIMS

I claim:

1. A method for constructing a data packet having both a payload segment that carries data associated with a link layer (MAC) or network layer (IP) address and a header segment that has one or more fields, the method comprising:
 - generating an address value based on the IP or MAC address;
 - formatting the address value; and
 - populating the formatted address value into a field of the header that will be used as a selection criteria by a receiving terminal.
2. The method according to claim 1 wherein the data packet is a multicast or unicast packet.
3. The method according to claim 1 wherein the IP or MAC address is a multicast or unicast address.
4. The method according to claim 3 wherein the packet is part of a Motion Picture Expert Group – level 2 (MPEG2) transport stream; the field that will be used as selection criteria comprises a one bit flag preceding the address value, the 12 least significant bits of the IP or MAC address of the payload.
5. The method according to claim 1 wherein the address value is formatted in accordance with a protocol.
6. The method according to claim 5 wherein the protocol is MPEG2.
7. The method according to claim 1 wherein the selection criteria comprises a subset of the IP or MAC address.
8. The method according to claim 1 wherein the selection criteria comprises a subset of the IP or MAC address that has been operated upon by a bitwise logic function.
9. The method according to claim 1 wherein the IP or MAC address, or a subset thereof, has been operated upon by a hashing function.

10. The method according to claim 1 wherein the addition of a flag to indicate that the packet is part of a multicast data stream formats the address value.
11. An article of manufacture for constructing a data packet having both a payload segment that carries data associated with a link layer (MAC) or network layer (IP) address and a header segment that has one or more fields, the article of manufacture comprising:
- a computer readable medium including instructions for:
- generating an address value based on the IP or MAC address;
- formatting the address value; and
- populating the formatted address value into a field of the header that will be used as a selection criteria by a receiving terminal.
12. The article of manufacture according to claim 11 wherein the data packet is a multicast or unicast packet.
13. The article of manufacture according to claim 11 wherein the IP or MAC address is a multicast or unicast address.
14. The article of manufacture according to claim 13 wherein the packet is part of a Motion Picture Expert Group – level 2 (MPEG2) transport stream; the field that will be used as selection criteria comprises a one bit flag preceding the address value, the 12 least significant bits of the IP or MAC address of the payload.
15. The article of manufacture according to claim 11 wherein the address value is formatted in accordance with a protocol.
16. The article of manufacture according to claim 15 wherein the protocol is MPEG2.
17. The article of manufacture according to claim 11 wherein the selection criteria comprises a subset of the IP or MAC address.

18. The article of manufacture according to claim 11 wherein the selection criteria comprises a subset of the IP or MAC address that has been operated upon by a bitwise logic function.
19. The article of manufacture according to claim 11 wherein the IP or MAC address, or a subset thereof, has been operated upon by a hashing function.
20. The article of manufacture according to claim 11 wherein the addition of a flag to indicate that the packet is part of a multicast data stream formats the address value.
21. An apparatus for constructing a data packet having both a payload segment that carries data associated with an IP or MAC address and a header segment that has one or more fields, the apparatus comprising:
 - a memory device storing a program;
 - a processor in communication with said memory device;
 - said processor operative with said program to:
 - generate an address value based on the IP or MAC address;
 - format the address value; and
 - populate the formatted address value into a field of the header that will be used as a selection criteria by a receiving terminal.
22. The apparatus according to claim 21 wherein the data packet is a multicast or unicast data packet.
23. The apparatus according to claim 21 wherein the IP or MAC address is a multicast address.
24. The apparatus according to claim 23 wherein the packet is part of a Motion Picture Expert Group – level 2 (MPEG2) transport stream; the field that serves as selection criteria comprises a one bit flag preceding the address value, the 12 least significant bits of the IP or MAC address of the payload.

25. The apparatus according to claim 21 wherein the address value is formatted in accordance with a protocol.
26. The apparatus according to claim 25 wherein the protocol is MPEG2.
27. The apparatus according to claim 21 wherein the selection criteria comprises a subset of the IP or MAC address.
28. The apparatus according to claim 21 wherein the selection criteria comprises a subset of the IP or MAC address that has been operated upon by a bitwise logic function.
29. The apparatus according to claim 21 wherein the selection criteria comprises a subset of the IP or MAC address that has been operated upon by a hashing function.
30. The apparatus according to claim 21 wherein the addition of a flag to indicate that the packet is part of a multicast data stream formats the address value.
31. The apparatus according to claim 21 wherein the apparatus is a wireless handheld terminal.
32. A method for selecting a desired data packet from a plurality of data packets, where each packet is associated with an IP or MAC address, the method comprising:
 - generating an expected value for a field in the header based on the IP or MAC address, where said field is used as selection criteria; and
 - examining the field used as selection criteria in each packet of a plurality of incoming packets so as to identify packets that contain the expected value.
33. The method according to claim 32 wherein the data packet is a multicast or unicast packet.
34. The method according to claim 32 wherein the IP or MAC address is a multicast or unicast address.
35. The method according to claim 32 wherein the IP or MAC address is determined from a table.

36. The method according to claim 32 wherein the anticipated address value is determined solely from the IP or MAC address of the desired data stream.
37. The method according to claim 32 wherein the selection criteria comprises a subset of the IP or MAC address.
38. The method according to claim 32 wherein the selection criteria comprises a subset of the IP or MAC address that has been operated upon by a bitwise logic function.
39. The method according to claim 32 wherein the selection criteria comprises a subset of the IP or MAC address that has been operated upon by a hashing function.
40. The method according to claim 32 wherein a flag value indicates that the packet is part of a multicast data stream.
41. The method according to claim 32 wherein the packet is part of a Motion Picture Expert Group - level 2 (MPEG2) transport stream; the field that will be used as selection criteria is a one bit flag preceding the 12 least significant bits of the IP or MAC address of the payload.
42. An article of manufacture for selecting a desired data packet from a plurality of data packets, where each packet is associated with an IP or MAC address, the article of manufacture comprising:
- a computer readable medium including instructions for:
- generating an expected value for a field in the header based on the IP or MAC address, where said field is used as selection criteria; and
- examining the field used as selection criteria in each packet of a plurality of incoming packets so as to identify packets that contain the expected value.
43. The article of manufacture according to claim 42 wherein the data packet is a multicast or unicast packet.

44. The article of manufacture according to claim 42 wherein the IP or MAC address is a multicast or unicast address.
45. The article of manufacture according to claim 42 wherein the IP or MAC address is determined from a table.
46. The article of manufacture according to claim 42 wherein the anticipated address value is determined solely from the IP or MAC address of the desired data stream.
47. The article of manufacture according to claim 42 wherein the selection criteria comprises a subset of the IP or MAC address.
48. The article of manufacture according to claim 42 wherein the selection criteria comprises a subset of the IP or MAC address that has been operated upon by a bitwise logic function.
49. The article of manufacture according to claim 42 wherein the selection criteria comprises a subset of the IP or MAC address that has been operated upon by a hashing function.
50. The article of manufacture according to claim 42 wherein a flag value indicates that the packet is part of a multicast data stream.
51. The article of manufacture according to claim 42 wherein the packet is part of a Motion Picture Expert Group - level 2 (MPEG2) transport stream; the field that will be used as selection criteria is a one bit flag preceding the 12 least significant bits of the IP or MAC address of the payload.
52. An apparatus for selecting a desired data packet from a plurality of data packets, where each packet is associated with an IP or MAC address, the apparatus comprising:
- a memory device storing a program;
 - a processor in communication with said memory device;
 - said processor operative with said program to:

generate an expected value for a field in the header based on the IP or
MAC address, where said field is used as selection criteria; and

examine the field used as selection criteria of each packet in a plurality
of incoming packets so as to identify packets that contain the expected value.

53. The apparatus according to claim 52 wherein the data packet is a multicast or unicast packet.
54. The apparatus according to claim 52 wherein the IP or MAC address is a multicast or unicast address.
55. The apparatus according to claim 52 wherein the IP or MAC address is determined from a table.
56. The apparatus according to claim 52 wherein the anticipated address value is determined solely from the IP or MAC address of the desired data stream.
57. The apparatus according to claim 52 wherein the selection criteria comprises a subset of the IP or MAC address.
58. The apparatus according to claim 52 wherein the selection criteria comprises a subset of the IP or MAC address that has been operated upon by a bitwise logic function.
59. The apparatus according to claim 52 wherein the selection criteria comprises a subset of the IP or MAC address that has been operated upon by a hashing function.
60. The apparatus according to claim 52 wherein a flag value indicates that the packet is part of a multicast data stream.
61. The apparatus according to claim 52 wherein the packet is part of a Motion Picture Expert Group - level 2 (MPEG2) transport stream; the field that is used as selection criteria is a one bit flag preceding the 12 least significant bits of the IP or MAC address of the payload.

62. The apparatus according to claim 52 wherein the apparatus is a wireless handheld terminal.
63. A method for constructing a multicast data packet, said packet having both a payload segment that carries data associated with an IP or MAC address and a header segment that has one or more fields, the method comprising:
- generating an address value based on the IP or MAC address for the payload;
 - generating a status value to identify the packet as part of a multicast data stream; and
 - populating the address value and the status value into a field of the header that will be used as selection criteria by receiving terminals.
64. The method according to claim 63 wherein the IP or MAC address is a multicast address.
65. The method according to claim 63 wherein the packet is part of a Motion Picture Expert Group – level 2 (MPEG2) transport stream; the field that is used as selection criteria comprises a one bit flag preceding the address value, the 12 least significant bits of the IP or MAC address of the payload.
66. The method according to claim 63 wherein the address value is formatted in accordance with a protocol.
67. The method according to claim 66 wherein the protocol is MPEG2.
68. The method according to claim 63 wherein the selection criteria comprises a subset of the IP or MAC address.
69. The method according to claim 63 wherein the selection criteria comprises a subset of the IP or MAC address that has been operated upon by a bitwise logic function.
70. The method according to claim 63 wherein the IP or MAC address, or a subset thereof, has been operated upon by a hashing function.

71. An article of manufacture for constructing a multicast data packet, said packet having both a payload segment that carries data associated with an IP or MAC address and a header segment that has one or more fields, the article of manufacture comprising:
- a computer readable medium including instructions for:
 - generating an address value based on the IP or MAC address for the payload;
 - generating a status value to identify the packet as part of a multicast data stream; and
 - populating the address value and the status value into a field of the header that will be used as selection criteria by receiving terminals.
72. The article of manufacture according to claim 71 wherein the IP or MAC address is a multicast address.
73. The article of manufacture according to claim 71 wherein the packet is part of a Motion Picture Expert Group – level 2 (MPEG2) transport stream; the field that is used as selection criteria comprises a one bit flag preceding the address value, the 12 least significant bits of the IP or MAC address of the payload.
74. The article of manufacture according to claim 71 wherein the address value is formatted in accordance with a protocol.
75. The article of manufacture according to claim 74 wherein the protocol is MPEG2.
76. The article of manufacture according to claim 71 wherein the selection criteria comprises a subset of the IP or MAC address.
77. The article of manufacture according to claim 71 wherein the selection criteria comprises a subset of the IP or MAC address that has been operated upon by a bitwise logic function.

78. The article of manufacture according to claim 71 wherein the IP or MAC address, or a subset thereof, has been operated upon by a hashing function.
79. An apparatus for constructing multicast data packets, said packet having both a payload segment that carries data associated with an IP or MAC address and a header segment that has one or more fields, including a field used as selection criteria by receiving terminals, the apparatus comprising:
- a memory device storing a program;
 - a processor in communication with said memory device;
 - said processor operative with said program to:
 - generate an address value based on the IP or MAC address for the payload;
 - generate a status value to identify the packet as part of a multicast data stream; and
 - populate the address value and the status value into a field of the header that will be used as selection criteria by receiving terminals.
80. The apparatus according to claim 79 wherein the IP or MAC address is a multicast address.
81. The apparatus according to claim 79 wherein the packet is part of a Motion Picture Expert Group – level 2 (MPEG2) transport stream; the field that is used as selection criteria comprises a one bit flag preceding the address value, the 12 least significant bits of the IP or MAC address of the payload.
82. The apparatus according to claim 79 wherein the address value is formatted in accordance with a protocol.
83. The apparatus according to claim 79 wherein the protocol is MPEG2.

84. The apparatus according to claim 79 wherein the selection criteria comprises a subset of the IP or MAC address.
85. The apparatus according to claim 79 wherein the selection criteria comprises a subset of the IP or MAC address that has been operated upon by a bitwise logic function.
86. The apparatus according to claim 79 wherein the IP or MAC address, or a subset thereof, has been operated upon by a hashing function.
87. The apparatus according to claim 79 wherein the apparatus comprises a wireless handheld terminal.
88. A method for selecting a multicast desired data packet from a plurality of data packets, where each packet is associated with an IP or MAC address and possesses a field used as selection criteria, the method comprising:
- generating an address value based on the IP or MAC address for the payload of the desired packet;
 - generating a status value to represent that the packet is part of a multicast data stream;
 - examining the field used as selection criteria in incoming packets for packets that contain the expected arrangement of the address value and the status value.
89. The method according to claim 88 wherein the IP or MAC address is determined from a table.
90. The method according to claim 88 wherein the anticipated address value is determined solely from the IP or MAC address of the desired data stream.
91. The method according to claim 88 wherein the selection criteria comprises a subset of the IP or MAC address.
92. The method according to claim 88 wherein the selection criteria comprises a subset of the IP or MAC address that has been operated upon by a bitwise logic function.

93. The method according to claim 88 wherein the selection criteria comprises a subset of the IP or MAC address that has been operated upon by a hashing function.
94. The method according to claim 88 wherein the packet is part of a Motion Picture Expert Group - level 2 (MPEG2) transport stream; the field that serves as selection criteria is a one bit flag preceding the 12 least significant bits of the IP or MAC address of the payload.
95. An article of manufacture for selecting a multicast desired data packet from a plurality of data packets, where each packet is associated with an IP or MAC address and possesses a field used as selection criteria, the article of manufacture comprising:
- a computer readable medium including instructions for:
- generating an address value based on the IP or MAC address for the payload of the desired packet;
- generating a status value to represent that the packet is part of a multicast data stream;
- examining the field used as selection criteria in incoming packets for packets that contain the expected arrangement of the address value and the status value.
96. The article of manufacture according to claim 95 wherein the IP or MAC address is determined from a table.
97. The article of manufacture according to claim 95 wherein the anticipated address value is determined solely from the IP or MAC address of the desired data stream.
98. The article of manufacture according to claim 95 wherein the selection criteria comprises a subset of the IP or MAC address.

99. The article of manufacture according to claim 95 wherein the selection criteria comprises a subset of the IP or MAC address that has been operated upon by a bitwise logic function.
100. The article of manufacture according to claim 95 wherein the selection criteria comprises a subset of the IP or MAC address that has been operated upon by a hashing function.
101. The article of manufacture according to claim 95 wherein the packet is part of a Motion Picture Expert Group - level 2 (MPEG2) transport stream; the field that serves as selection criteria is a one bit flag preceding the 12 least significant bits of the IP or MAC address of the payload.
102. An apparatus for selecting a desired multicast data packet from a plurality of data packets, where each packet is associated with an IP or MAC address and possesses a field used as selection criteria, the apparatus comprising:
- a memory device storing a program;
 - a processor in communication with said memory device;
 - said processor operative with said program to:
 - generate an address value based on the IP or MAC address for the desired packet;
 - generate a status value to represent that the packet is part of a multicast data stream;
 - examine the field used as selection criteria in incoming packets for packets that contain the expected arrangement of the address value and the status value.
103. The apparatus according to claim 102 wherein the IP or MAC address is determined from a table.

104. The apparatus according to claim 102 wherein the anticipated address value is determined solely from the IP or MAC address of the desired data stream.
105. The apparatus according to claim 102 wherein the selection criteria comprises a subset of the IP or MAC address.
106. The apparatus according to claim 102 wherein the selection criteria comprises a subset of the IP or MAC address that has been operated upon by a bitwise logic function.
107. The apparatus according to claim 102 wherein the selection criteria comprises a subset of the IP or MAC address that has been operated upon by a hashing function.
108. The apparatus according to claim 102 wherein the packet is part of a Motion Picture Expert Group - level 2 (MPEG2) transport stream; the field that serves as selection criteria is a one bit flag preceding the 12 least significant bits of the IP or MAC address of the payload.
109. A method for transmitting data on a distributed (internet-type) network utilizing MPEG2 packets, each packet known to contain a 13-bit field identified as a packet identification (PID) field, the network having one or more receiving entities and one or more transmitting entities, the method comprising:
- populating the first bit of the PID field with a bit to indicate that the packet contains multicast data;
 - populating the remaining 12 bits of the PID with the 12 least significant bits of the IP or MAC address for the data the pack carries; and
 - constructing the remainder of the packet.
110. A method for selecting a desired data packet from a plurality of MPEG2 data packets, each packet known to contain a 13-bit field identified as a packet identification (PID) field, the selection to be based said field, the method comprising:
- examining the PID at the network interface hardware

bringing into the protocol stack all packets that have a PID field characterized

by:

a first bit flag indicating that it does not carry a multicast program; or

a first bit flag indicating that a multicast program is carried by the packet and the remainder of the PID contains the 12 least significant bits of the IP or MAC address for the data the desired packet will carry.

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